



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/538,338	03/29/2000	Steven Albert Benner	13238.9USC1	6192

7590

04/09/2002

Jill A. Fahrlander  
Michael Best & Friedrich  
One South Pinckney Street  
P.O. Box 1806  
Madison, WI 53701-1806

EXAMINER

ARTHUR, LISA BENNETT

ART UNIT

PAPER NUMBER

1634

DATE MAILED: 04/09/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/538,338

Applicant(s)

BENNER, STEVEN ALBERT

Examiner

Lisa B. Arthur

Art Unit

1655

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on 03 January 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☐ Claim(s) 4-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 4,5 and 7-11 is/are rejected.
- 7) ☐ Claim(s) 6 and 12-14 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

Art Unit: 1634

1. This action is in response to the paper filed January 22, 2002. The arguments, the terminal disclaimer and the declarations filed under 37 CFR 1.132 have been thoroughly reviewed but are deemed insufficient to place this application in condition for allowance. Any rejections which have not been reiterated have been withdrawn. This action is FINAL.

**MAINTAINED REJECTIONS**

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 4,5,10,11 are rejected under 35 U.S.C. 102(b) as being anticipated by Eritja et al. (Nucleic Acids Research (1986) 14(20): 8135-8153).

Claims 4,5,10,11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eritja et al..

Eritja et al. Teach a method for making an oligonucleotide using a template containing a non-standard nucleotide, i.e. a xanthine, by contacting this template with a mixture of nucleotide triphosphates and forming an oligonucleotide complementary to the portion of the template containing the xanthine by enzymatic polymerization. (Page 8151, lines 11-33). Eritja et al. teaches that the mixture of nucleoside triphosphates included dTTP, dATP, dCTP, dUTP or dAPTP (which is 9-(beta-D-2'-deoxyribofuranosyl)-2-aminopurine triphosphate). This dAPTP is an example of a derivatized nucleotide. It is noted that Eritja et al does not identify the xanthine

Art Unit: 1634

as a puADA, but this characterization of xanthine does not differentiate it from the xanthine used by Eritja et al. Therefore, Eritja et al teach every limitation recited in the claims.

The response traverses the rejection on the grounds that Eritja et al. Does not disclose base pairing between xanthine and a complementary pyrimidine having a donor-acceptor-donor hydrogen bonding pattern. The arguments have been thoroughly reviewed but are deemed non-persuasive because the arguments are directed to an embodiment of the claims to which the claims are not limited. Complementary pyrimidines are not limited to pyrimidines which exhibit the donor-acceptor donor hydrogen bonding pattern. A complementary non-standard nucleotide also includes any nucleotide which is incorporated opposite the xanthine nucleotide. Eritja et al. Taught that nucleotides were incorporated opposite the xanthine. The fact that Eritja et al. characterized this incorporation as a "misincorporation" is not equivalent to stating that the incorporated base was not "complementary". Therefore, because the claims are written so broadly, Eritja et al. Does anticipate the claimed invention even though Eritja et al. Is not directed to application disclosed invention of using particular non-standard nucleotide base pairs. With regard to claim 10, the statement that the nucleotide is selected from pyDAD, etc. does not differentiate the method of Eritja et al. From that of the claims because this is only a description of how a nucleotide could hydrogen bond with any other nucleotide but does not state that in the method of the claim the nucleotide added forms a specific hydrogen bond pattern with a particular nucleotide in the template oligonucleotide. Therefore this rejection is maintained.

Art Unit: 1634

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 7,8,9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eritja et al..

Eritja et al. Teach a method for making an oligonucleotide using a template containing a non-standard nucleotide, i.e. a xanthine by contacting this template with a mixture of nucleotide triphosphates and forming an oligonucleotide complementary to the portion of the template containing the xanthine by enzymatic polymerization. (Page 8151, lines 11-33). Eritja et al. teaches that the mixture of nucleoside triphosphates included dTTP, dATP, dCTP, dUTP or dAPTP (which is 9-(beta-D-2'-deoxyribofuranosyl)-2-aminopurine triphosphate). This dAPTP is an example of a derivatized nucleotide.

Eritja et al. Does not teach using a labeled nucleoside triphosphate during the extension reaction. However, Eritja et al does teach labeling the 5' end of the primer with a radiolabeled nucleotide, i.e 32P-ATP. Furthermore, the use of biotin, thiol and hydrazine labeled nucleotides during primer extension reactions and their incorporation by polymerases is was well known in the art. Therefore, it would have been prima facie obvious to one of ordinary skill to have modified the method of Eritja et al. By adding a label, such as a radiolabel, biotin, thiol or hydrazine, to the

Art Unit: 1634

nucleotides to be incorporated in the primer opposite the non-standard base, xanthine, in order to have more easily and quickly labeled the extended primer than by end labeling the primer prior to extension which adds an additional step. Furthermore, the ordinary artisan would have been motivated to have labeled the base which incorporated opposite the non-standard base in order to easily detect that the derivatized base was able to incorporate opposite the non-standard base.

***Response to Arguments***

The response traverses the rejection on the same grounds as given for the rejection of Erita et al. made under 35 U.S.C. 102. Therefore, the arguments are found non-persuasive for the same reasons as given above. This rejection is maintained.

6. Claims 6, and 12-14 are objected to as being dependent upon a rejected claim.

**7. THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,


Art Unit: 1634

however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lisa Arthur whose telephone number is (703) 308-3988. The examiner can normally be reached on Monday-Wednesday from 7:00 am to 2:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Jones, can be reached on (703) 308-1152. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-4242.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

  
**LISA B. ARTHUR**  
**PRIMARY EXAMINER**  
**GROUP 1800-1600**

April 8, 2002